Test: The *AD/AS* Model

Instructor's Version

Answers: Free-Response Questions

1. First, let's consider the basics of the *AD*/*AS* model.

A. List and explain the three reasons why the *AD* curve is downward sloping. (3 points)

Answer:
The real balances effects says that when the price level rises, the real value of the cash households are holding falls, and because they are less wealthy, they will demand fewer consumption goods.

The interest rate effect says that when the price level rises, interest rates rise and households and firms will reduce their demand for consumption and investment goods, which they must borrow money to purchase.

The net exports effect says that when the price level rises, domestically produced goods will appear more costly to foreigners, foreign goods will appear less costly to households (holding exchange rates constant), and net exports will fall.

1 point for each of the three reasons.

B. Explain an important assumption behind the upward slope of the *AS* curve. (3 points)

Answer:
One important assumption is that wages and input costs are held constant even when the price level increases. A second assumption is that at higher price levels, firms will find it worthwhile to produce greater amounts of output. A third assumption is that higher production decreases excess capacity, making even more production difficult, so increases in aggregate quantity supplied are smaller and smaller as price level gets very high.

3 points for a correct assumption mentioned. Be fairly generous here as the question is not terribly clear.

C. Explain the process through which an economy returns to long-run equilibrium in the *AD*/*AS* model when output is above full employment. You may use a graph to help you answer, but your answer should be in words — the graph will not be graded. (4 points)

Answer:
If output is greater than the full-employment level, the unemployment rate will be less than the natural rate of unemployment, and wages will rise. When wages rise, aggregate supply decreases, and the *AS* curve shifts to the left, bringing the economy back toward long-run equilibrium.

4 points for this explanation. 1 point if some critical element is missing.

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D. Explain the process through which an economy returns to long-run equilibrium in the *AD/AS* model when output is below full employment. You may use a graph to help you answer, but your answer should be in words — the graph will not be graded. (4 points)

Answer:
If output is less than the full-employment level, the unemployment rate will be greater than the natural rate and wages will fall. When wages fall, aggregate supply increases and the *AS* curve shifts to the right, bringing the economy back toward long-run equilibrium.

4 points for this explanation. 1 point if some critical element is missing.

2. Now, let's apply your knowledge of the *AD*/*AS* model to predict the effect on economic variables (i.e., P, RGDP, interest rates, wages, savings and spending) of some events on the U.S. economy. Diagram the effect of the following events. Be sure to explain the effects in the short run and effects in the long run for each question, in words. To keep things clear, assume that in each case the economy starts out at long-run equilibrium.

A. Labor unions become better organized, and this allows them to drive up wages in the short run in the U.S. (3 points)

Answer:
This will shift *AS* to the left. In the short run, price level will increase, and RGDP will fall. In the long run, wages will fall due to higher unemployment and *AS* will increase. As the economy moves back toward long-run equilibrium, the price level will fall to its original level, and RGDP will return to the full-employment equilibrium level.

1 point for the correct diagram.
1 point for a correct accompanying short-run explanation.
1 point for a correct accompanying long-run explanation.

B. Tensions in South America dramatically increase the price of coffee. For the sake of argument, suppose coffee is an important input in many industries, including computer programming, transportation, and financial services. (3 points)

Answer:
An increase in the price of an input will shift *AS* to the left. In the short run, price level will increase and RGDP will fall. In the long run, wages will fall due to higher unemployment and *AS* will increase. As the economy moves back toward long-run equilibrium, the price level will return to its original level, and RGDP will return to the full-employment equilibrium level.

1 point for the correct diagram.
1 point for a correct accompanying short-run explanation.
1 point for a correct accompanying long-run explanation.

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C. The government increases both taxes and spending by $500 billion. The money is spent domestically. Hint: Be sure to provide a strict interpretation of the *AD/AS* model as part of your answer. (3 points)

Answer:
This will simultaneously increase and decrease *AD* by $500 billion; the net effect on the economy (according to a strict interpretation of the model) is no change. An explanation may disagree with this conclusion, and that is acceptable.

1 point for the correct diagram.
1 point for a correct accompanying explanation of the strict interpretation.
1 point for an alternative explanation.

D. Suddenly, foreign countries sell great quantities of important inputs such as steel and computer chips at very low prices in this country. Hint: The long-run effect will depend on whether the price decrease is permanent or not. (3 points)

Answer:
This will reduce input prices, and *AS* will shift to the right. In the short run, price level will decrease, and RGDP will increase. In the long run the effect will depend on whether the influx of inputs is permanent. If it is, *LRAS* will increase, and there will be a new long-run equilibrium at a higher level of output and a lower price level. If the influx of inputs is not permanent, *LRAS* will not change, and in the long run wages will rise, and the economy will return to the old long-run equilibrium output and price level.

1 point for the correct diagram.
1 point for a correct accompanying short-run explanation.
1 point for a correct accompanying long-run explanation.

E. Households significantly reduce their spending and start saving a larger portion of their income, leading to a decrease in interest rates. Hint: Think about another sector of the economy and how it might respond to lower interest rates and what effect this will have on the model. (3 points)

Answer:
AD will decrease when households reduce consumption spending. This is the short-run effect. However, if their increased saving reduces interest rates, this could result in increased investment by firms, which will increase the productive capacity of the economy. As a result, *AD* shifts to the left and *AS* and *LRAS* shift to the right, leading to an indeterminate effect on output and a decrease in the price level in the long run.

1 point for the correct diagram.
1 point for a correct accompanying short-run explanation.
1 point for a correct accompanying long-run explanation.

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3. Everyone loves a tax cut. How will the short-run effects of a tax cut on the price level and on unemployment differ if the economy is in a recession from the effects if the economy is at full employment? (Hint: Examine the slope of the *AS* curve.) (5 points)

Answer:
Under both conditions a tax cut will increase the price level and decrease unemployment.
When the economy is in a recession, the increase in the price level will be smaller and the decrease in unemployment will be larger than when the economy is at full employment.

1 point for stating that a tax cut will increase the price level and decrease unemployment (this may be implicitly stated as part of the student's answer).
2 points for saying that the effect on the price level will be smaller when the economy is in recession.
2 points for saying that the effect on unemployment will be larger when the economy is in recession.

4. The economy is at full employment and an election is coming up. To make sure they're all re-elected, various officials decide to increase government spending by $100 billion. Senator Graham says the money should be spent on improving education and transport systems. Senator Dole proposes building several very large Coast Guard training facilities in states that currently have none, including Kentucky, Nebraska, Nevada, and Arkansas.

A. What is the major difference between the spending plans of Senator Graham and Senator Dole? (3 points)

Answer:
Education and transportation spending increase the *PPF* for the economy; Coast Guard training facilities do not. Education and transportation increase the technology and capital (human capital), which shifts the full-employment level of RGDP outward.

3 points for recognizing one as an investment that increases the LRAS, or PPF, or full-employment level of RGDP.

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B. What effect would Senator Graham's proposal have on the *AD/AS* model? Describe all shifts as well as the effects on short-run and long-run equilibrium change in output and the price level. (4 points)

Answer:
Senator Graham's proposal will increase *AD* because it will increase government spending. It will also increase *AS* because improved education and transportation systems will increase the productive capacity of the nation.

In the short run, output will increase, and the effect on the price level will be indeterminate. In the long run, output will remain higher, and the effect on the price level will still be indeterminate.

2 points for mentioning all three shifts (increase in AD, increase in AS, increase in LRAS).
1 point for the short-run effects (increase in output, indeterminate change in price level).
1 point for the long-run effects (increase in output, indeterminate change in price level).

C. What effect would Senator Dole's proposal have on the *AD/AS* model? Describe all shifts as well as the effects on short-run and long-run equilibrium change in output and the price level. (4 points)

Answer:
Senator Dole's proposal will increase *AD* because it will increase government spending.
In the short run, output will increase, and the price level will increase.
In the long run, output will return to the full-employment level, and the price level will be even higher.

2 points for mentioning the shift (increase in AD).
1 point for the short-run effects (increase in output, increase in price level).
1 point for the long-run effects (no changes in output, increase in price level).

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